Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Guidelines for Evaluating the	)	ET Docket No. 93-62
Environmental Effects of	)	
Radiofrequency Radiation	)	

To: The Commission

REPLY COMMENTS OF McCAW CELLULAR COMMUNICATIONS, INC.

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SUMMARY

In its original comments in this docket, McCaw supported the proposal in the *Notice* to base the Commission's regulation of RF exposure on the new ANSI/IEEE C95.1-1992 safety standard. McCaw also set forth two specific recommendations regarding the transition to the 1992 standard. First, McCaw endorsed retention of the existing categorical exclusions for land mobile and microwave base transmitters, based upon evidence that these classes of facilities are highly unlikely to exceed the 1992 ANSI/IEEE MPE limits in the ordinary course of operation. Second, McCaw related circumstances where state and local oversight of RF exposure are impeding the public's access to FCC-licensed radio services and requested the FCC to issue a further notice of proposed rulemaking to preempt state and local regulation of RF exposure. As shown below, the record in this proceeding strongly supports the implementation of the 1992 ANSI/IEEE standard consistent with McCaw's recommendations.

The record strongly supports the proposal to rely on the 1992 ANSI/IEEE safety standard for environmental assessments of RF exposure from FCC licensed facilities. The Commission's proposal to base its RF exposure regulations on the new ANSI/IEEE safety standard gained virtually universal support from a broad range of carriers, broadcasters, trade associations, users, government agencies, and users. With only limited exception, commenters agreed that the 1992 ANSI/IEEE standard was the most scientific, most up-to-date, comprehensive, and reliable standard available for assessing RF exposure. Accordingly, the record demonstrates that the FCC should expeditiously act on its proposal to base its RF exposure regulations on the 1992 ANSI/IEEE safety standard.

The record shows that implementation of the 1992 ANSI/IEEE safety standard should be implemented without imposing unnecessary administrative burdens on FCC licensees. In transitioning from reliance on the 1982 ANSI standard to the 1992 ANSI/IEEE standard, commenters have emphasized that the Commission should avoid creating unnecessary administrative burdens for FCC licensees. First, commenters have shown that the categorical exclusion is a critically important regulatory tool that continues to be both appropriate and necessary for many classes of FCC-authorized transmitters, including Part 21 and Part 22 base stations. For these facilities, the possibility of exceeding the MPE limits during the course of normal operation -- even under the 1992 standard -- are sufficiently remote that there would be no public interest benefit in requiring licensees to resort to extraordinary measures to demonstrate compliance. Similarly, no justification exists for imposing compliance burdens on radio carriers for end-user equipment, which both manufacturers and carriers have agreed should be subject to compliance verification during the type acceptance process.

The comments support the immediate issuance of a further notice to preempt state and local oversight over RF exposure. The record in this proceeding has shown that the exercise of jurisdiction over RF exposure by state and local agencies is impeding the realization of important FCC policies. Commenters have provided an extensive catalog of situations where consideration of RF exposure by state and local authorities is limiting the expansion and maintenance of radio services for the public, unnecessarily thwarting important federal policy goals. Under the circumstances, federal preemption of state and local regulations is necessary.

McCaw urges the Commission to act expeditiously on the recommendations discussed above. These suggestions are based upon substantial evidence and have the broad support of the radio industry. Adoption of rules consistent with these recommendations will best serve the public interest in assuring the availability of safe, low-cost radio communications services.

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McCaw Cellular Communications, Inc. ("McCaw"), by its attorneys, herewith submits its reply in the above-captioned docket. As detailed below, the record before the Commission shows compelling support for actions advocated in McCaw's opening comments. Specifically, the Commission should adopt radiofrequency ("RF") exposure regulations based on the 1992 American National Standards Institute ("ANSI") and Institute of Electrical and Electronic Engineers ("IEEE") safety standard.[1] In so doing, the existing categorical exclusion for Part 21 and Part 22 facilities should be retained to eliminate unnecessary administrative and regulatory burdens. Furthermore, the Commission should adopt a further notice to preempt state and local oversight over RF exposure issues. Actions based on these recommendations will best serve the public interest and the policies underlying the National Environmental Policy Act of 1969.[2]

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[1] ANSI/IEEE C95.1-1992, Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz (ANSI/IEEE Apr. 27, 1992) (previously released as IEEE C95.1-1991) ("ANSI/IEEE C95.1-1992").

[2] 42 U.S.C. §§ 4321-4370 (1988) ("NEPA").

I. THE COMMENTS DEMONSTRATE BROAD SUPPORT FOR RAPID ADOPTION OF THE 1992 ANSI/IEEE SAFETY STANDARD

The record developed in this docket shows that the 1992 ANSI/IEEE safety standard is the best available means for discharging the Commission's NEPA obligation to assess the impact of RF radiation. A diverse range of commenters representing carriers, users, broadcasters, manufacturers, and engineers have supported the Commission's proposal to rely upon the 1992 ANSI/IEEE standard.[3] These commenters support the 1992 ANSI/IEEE safety standard because:

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[3] Comments of American Personal Communications ("APC") at 2; Comments of Apple Computer, Inc. ("Apple") at 2; Comments of the Arizona Department of Public Safety ("Arizona") at 7 (noting that "it would be appropriate to adopt [the ANSI/IEEE] standards across the board, and not jump to other standards promulgated by other organizations such as the [NCRP] or the [IRPA]"); Comments of the Association of Maximum Service Television, Inc. and National Broadcasting Company, Inc. ("AMSTV") at 1-2; Comments of the Association of Federal Communications Consulting Engineers ("AFCCE") at 2; Comments of BellSouth Corporation, BellSouth Telecommunications, Inc., BellSouth Enterprises, Inc., and BellSouth Cellular Corp. ("BellSouth") at 2; Comments of CBS, Inc., Capital Cities/ABC Inc., Greater Media, Inc., Tribune Broadcasting Company, and Westinghouse Broadcasting Company, Inc. ("CBS *et al.*") at 12-17; Comments of the Cellular Telecommunications Industry Association ("CTIA") at 2-3; Comments of Jules Cohen & Associates ("JC&A") at 1; Comments of the Department of Defense ("DoD") at 2; Comments of E.F. Johnson Company ("E.F. Johnson") at 2-3, 8-9; Comments of the Electromagnetic Energy Policy Alliance ("EEPA") at 1-2; Comments of Sheldon L. Epstein, Esq. ("Epstein") at 5; Comments of Ericsson Corporation ("Ericsson") at 2, 4; Comments of the Department of Health and Human Services ("DHHS") at 1; Comments of GTE Service Corporation ("GTE") at i-iv; Comments of the Committee on Man and Radiation of the Institute of Electrical and Electronic Engineers ("IEEE/COMAR") at 1; Comments of the Land Mobile Communications Council ("LMCC") at 3; Comments of Motorola, Inc. ("Motorola") at 1-2; Comments of the National Association of Broadcasters ("NAB") at 9-10; Comments of the National Association of Business and Educational Radio, Inc. ("NABER") at 2-3; Comments of Northern Telecom ("Northern Telecom") at 1, 7; Comments of Pacific Bell & Nevada Bell ("PacBell") at 1; Comments of Pacific Telesis Corporation ("PacTel") at 2; Comments of Raytheon Corporation ("Raytheon") at 1; Comments of Southwestern Bell Mobile Systems, Inc. ("SWBMS") at 2; Comments of Sprint Cellular Corporation ("Sprint") at 1; Comments of the Telecommunications Industry Association ("TIA") at 1; Comments of Telocator ("Telocator") at 2-3; Comments of the United States Telephone Association ("USTA") at 1-2; Comments of the Utilities Telecommunication Council ("UTC") at 1.

- The 1992 ANSI/IEEE standard is the most up-to-date exposure guideline and is based on the most recent scientific findings.[4]

- The ANSI/IEEE standard embodies broad scientific consensus.[5]

- The process used to develop the ANSI/IEEE standard was open and inclusive.[6]

- The ANSI/IEEE standard is conservative and incorporates significant safety factors.[7]

- The ANSI/IEEE standard employs a two-tier structure that affords greater protection for uncontrolled environments.[8]

- The ANSI/IEEE standard is consistent with other national and international standards,[9] and has been adopted by the American Conference of

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[4] APC at 2-3; Comments of American Telephone and Telegraph Co. ("AT&T") at 5-6; CTIA at 5-6; EEPA at 1-2; NAB at 3, 32-35 (noting, *e.g.*, "the revised ANSI standard reflects much more current thinking, theory and scientific findings than the body of knowledge upon which the 1982 ANSI standard was based" and "[t]he other standards predate C95.1-1992 by at least four years . . . [and] the data base of scientific literature used in the development of the ANSI/IEEE standard was far more comprehensive and contained more recent publications than was used in the development of other standards"); SWBMS at 2.

[5] AT&T at 1-7; AMSTV at 2; Comments of Broadcast Signal Lab ("BSL") at 1-2 (observing that "[t]he strongest body of science available stands behind the proposed standard"); E.F. Johnson at 2-3, 8-9; EEPA at 1-2; GTE at 2-3; IEEE/COMAR at 1 (the ANSI/IEEE standard "reflects a broad consensus of the scientific and engineering communities regarding maximum permissible exposures (MPEs) that will help to assure safe work places and living environments"); LMCC at 3; Raytheon at 2.

[6] JC&A at 9; NABER at 6.

[7] BSL at 1-2; GTE at 4-6 (noting that "[t]he ANSI/IEEE Standards on RF radiation are based on extremely conservative margins of error with significant safety factors"); Matsushita at 1; NAB at 15.

[8] Comments of the Food and Drug Administration ("FDA") at 1; LMCC at 4-5; TIA at 2-8.

[9] Comments of Alcatel SEL ("Alcatel") at 1 (noting that adoption of the ANSI/IEEE standard will "improve the consistency of standards between Europe and the USA" and "create similar market conditions with respect to radiation aspects for telecommunication goods in Europe and the US"); APC at 3 (observing that "there is virtually no practical difference between the guidelines at PCS frequencies"); AT&T at 5-6 n.9; Arizona at 7 (additionally noting that "[t]he differences in the microwave allowable exposure [between ANSI/IEEE and NCRP and IRPA] are only a factor of two, not an order of magnitude or more"); EEPA at 8-9; NAB at 32-35; Raytheon at 2 (observing that "the C95 standard was chosen as an initial starting point for a NATO standard as well as other international guidelines"); Comments of TRW Corporation ("TRW") at 12-13;

Governmental Industrial Hygienists ("ACGIH"), NATO, and by the FCC itself for new PCS systems.[10]

- FCC adoption of the ANSI/IEEE standard ensures a "living standard" that evolves with scientific advances.[11]

Based on these compelling reasons, the FCC should expeditiously implement its proposal to rely on ANSI/IEEE C95.1-1992 for future assessments of the environmental impact of FCC-authorized radio transmitters.[12]

Notwithstanding the overall endorsement of ANSI/IEEE C95.1-1992, there were a few limited criticisms of the standard. First, a few parties suggested that at high frequencies, the ANSI/IEEE standard specifies higher exposure limits than, for example, the National Council on Radiation Protection ("NCRP") safety guideline. As discussed in the comments of Jules Cohen & Associates, however, when the shorter averaging times of the ANSI/IEEE standard are factored in, the limits in the ANSI/IEEE standard may actually be more stringent than the limits specified in the NCRP standard.[13] Thus, as the National Association of Broadcasters states, "substantial agreement is found among [the ANSI/IEEE, NCRP, IRPA, and ACGIH] standards in the body resonant range from 30 to 300 MHz,"

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[10] AT&T at 6-7.

[11] Raytheon at 2.

[12] As CTIA accurately notes, ANSI/IEEE C95.1-1992 "is the product of a science-based, comprehensively detailed and thorough effort to update RF environmental regulation in accordance with advances in scientific developments in this field." CTIA at 3.

[13] JC&A at 8-9.

and, "[w]here differences occur at the frequency extremes, the greater logic appears to adhere to ANSI/IEEE."[14]

Second, three parties noted that the ANSI/IEEE standard does not address so-called "non-thermal" effects and deeply modulated low frequency signals.[15] However, many other commenters observe that such comments do not provide a basis for modifying or rejecting the ANSI/IEEE standard.[16] The Electromagnetic Energy Policy Alliance ("EEPA"), for example, notes that "no other organization that has recently developed exposure criteria, including IRPA/ICNIRP, the National Radiological Protection Board in the UK, the VDE in Germany, the [ACGIH], or Commission 5 of the European Communities has considered this to be a meaningful issue."[17] For example, after reviewing the bio-effects literature through 1990, the World Health Organization concluded that "the effects of [amplitude modulated RF fields] at the cellular, tissue and organ levels cannot be related to adverse health effects."[18] NCRP is the only standard-setting body that has established special exposure criteria for low

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[14] NAB at 32-35.

[15] Comments of the Bio-Effects Committee of the American Radio Relay League, Inc. ("ARRL/BEC") at 7; Comments of the Environmental Protection Administration ("EPA"); Comments of the Industrial Hygiene Institute ("IHI") at 1.

[16] Alcatel at 2 (stating "even the most recent findings cannot reliably prove any difference with respect to a negative effect on the human body between pulsed and non-pulsed power densities"); APC at 3; JC&A at 9; Ericsson at 12-13; EEPA at 9; Motorola at 21-22; NAB at 35 (stating "[n]o recognizable health risk would be involved in omitting modulation effects from the ultimate criteria adopted by the Commission"); Raytheon at 2; TIA at 25-27 (observing that "while the actions in creation of the NCRP Report No. 86 were no doubt a proper exercise of prudent caution at that time in regards to the question of the effects of modulation, TIA holds that the industry and the FCC should embrace the benefits of the developments occurring in the last six years of research as well as the studies of the IEEE C95.1 Subcommittee IV").

[17] EEPA at 9.

[18] Electromagnetic Fields (300 Hz-300 GHz) Environmental Criteria No. 137 (World Health Organization 1993). The U.S. representatives on the task force included Dr. Blackman and Dr. Swicord of the Food and Drug Administration.

frequency modulation (applying the general population exposure restrictions to occupational users). Motorola, which finds the NCRP criteria "credible," notes that "[a]t this time there is an insufficient data base upon which to scientifically regulate amplitude modulated radio signals."[19] Furthermore, the EPA and the FDA state that "[t]he majority of [the] relatively few studies [on non-thermal effects] indicate no significant health effects are associated with chronic, low-level exposure to RF radiation."[20]

With these few criticisms clearly rebutted, the Commission should adopt the 1992 ANSI/IEEE safety standard as the basis for future evaluations of environmental effects of RF exposure. ANSI/IEEE C95.1-1992 is the most current scientific exposure standard available and the ANSI/IEEE standard-setting process ensures that future scientific findings will continue to be monitored and evaluated as appropriate. Radiological and health experts alike agree, however, that, at this time, the ANSI/IEEE safety standard provides all warranted protection against all verifiable health effects due to RF exposure.

II. THE RECORD SUPPORTS IMPLEMENTATION OF THE 1992 ANSI/IEEE STANDARD WITHOUT IMPOSING UNNECESSARY ADMINISTRATIVE BURDENS

A. Part 21 and Part 22 Categorical Exclusions Minimize Unnecessary Administrative and Regulatory Burdens

As Telocator states, because of "the very limited potential for the majority of land mobile base stations . . . to exceed relevant ANSI/IEEE exposure levels, . . . compliance

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[19] Motorola at 21-22.

[20] EPA at 2-3, 5; *see also* FDA at 2.

burdens should be minimized to the extent possible."[21] One of the most important and broadly supported regulatory tools at the Commission's disposal to minimize administrative burdens is the use of categorical exclusions.[22] As the Commission found in 1987, there are some classes of facilities where the risk of exceeding the standard is minimal in the ordinary course of operation.[23] For those facilities, the Commission found that the burden of requiring extensive compliance showings significantly outweighs the potential benefits to the public and consequently "categorically excluded" such facilities from routine environmental processing. The proposal to update the Commission's RF exposure regulations does not alter this cost/benefit analysis. Accordingly, in cases "where consistent industry and service operating standards indicate a predictable and reliable compliance with the ANSI standards,"[24] the Commission should continue to employ categorical exemptions.

1. The existing categorical exclusions for Part 21 and Part 22 operations should be maintained

Examination of the record compiled on the exposures associated with typical land mobile base stations and microwave relay stations demonstrates that the Commission should

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[21] Telocator at 9.

[22] Comments of AMSC Subsidiary Corporation at 10 ("AMSC"); Arizona at 6; AMSTV at 5-7 (also noting "adoption of the 1992 ANSI/IEEE standard does not necessitate substantial revision of existing exclusion criteria"); AFCCE at 4-5; BellSouth at 7-8; JC&A at 5-7; E.F. Johnson at 7; Ericsson at 16-17; GTE at 13-15; LMCC at 9-10; Motorola at 14-20; NAB at 20-26; NABER at 4-6; PacTel at 7-11, Exhibit 3 (stating "continuation of the FCC's existing categorical exclusion for land mobile facilities is appropriate given the minimal opportunity for overexposure and land mobile's minute contribution to the ambient EMF emissions in the environment"); Raytheon at 2; TIA at 28; UTC at 6-7.

[23] *See Biological Effects of Radiofrequency Radiation*, 2 FCC Rcd 2064-2065; *erratum* 2 FCC Rcd 2526 (1987).

[24] LMCC at 9.

retain the existing categorical exclusions for Part 21 and Part 22 facilities. In addition to the scientific studies and operational evidence provided by McCaw, the record provides corroborating evidence from other sources that confirms that such facilities are highly unlikely to exceed relevant safety standards in the ordinary course of operation. Indeed, only one party, Doty Moore Tower Services ("Doty Moore"), provided any data questioning the potential compliance of land mobile facilities, and, as discussed below, Doty Moore's data has been repudiated by a recent site survey conducted by Hatfield & Dawson. Under the circumstances, the record confirms that maintaining the categorical exclusions for Part 21 and Part 22 facilities is in the public interest.

Cellular base stations are highly unlikely to exceed the ANSI/IEEE safety standard and should be exempted from onerous compliance burdens. Commenters have agreed that, due to a variety of engineering and siting factors and the RF characteristics of cellular system design, cellular base stations should be exempted from routine environmental processing.[25] For example, AT&T states that:

> The evidence gathered by AT&T indicates that the overwhelming number of cellular base stations produce potential exposures that comply with the new limits for the uncontrolled environment. . . . The expansion of cellular systems by subdivision of cells and the resulting reduction in [ERP], together with the relative ease of configuring a base station to ensure the new standard is met . . . will effectively preclude such anomalous [non-compliant] sites.[26]

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[25] AT&T at 10; EEPA at 6-7; GTE at 12-15 ("mobile base station transmitters for Part 22 services have minimal potential to exceed the safety thresholds established in the new ANSI/IEEE standards. . . . These transmitters are low-power, inaccessible, and use intermittently."); Motorola at Appendix 2, p. 5; PacTel at 7-10; Sprint at 3-4, 5-6; TIA at 23; USTA at 3

[26] AT&T at 10.

EEPA, for its part, notes that "[t]he results of field-strength measurements made in the vicinity of typical tower-mounted antennas used for cellular radio, extrapolated to represent worst-case conditions, have shown that exposure of the public is at levels below 1 $\mu W/cm^2$."[27] Similarly, Motorola concluded that under atypical, worst-case operating conditions, a 300 Watt cellular base station facility would meet the applicable MPE for uncontrolled environments at a distance of merely 6.04 meters and would meet the applicable MPE for controlled environments at only 1.98 meters.[28] Based on these showings, imposing regulatory requirements on cellular carriers to demonstrate compliance with the 1992 ANSI/IEEE standard is not justified by the evidence.

Paging transmitters do not pose an exposure threat and should be exempted from routine environmental processing. The record also demonstrates that typical paging facilities will also meet applicable MPE limits by a wide margin.[29] Glenayre states, "[a]s a worst case example, . . . the distance required in order to meet the ANSI/IEEE guidelines of 3 mW/cm^2 (900 MHz), is conservatively 3 to 4 meters in the main beam of the antenna" for even a "high power" paging facility.[30] This showing correlates with Motorola's RF exposure calculations for a 3500 watt paging base station in the 900 MHz band, which demonstrate that the stand-off distance necessary to meet the uncontrolled environment MPE

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[27] EEPA at 6-7.

[28] Motorola at Appendix 2, p. 5.

[29] Comments of Glenayre Electronics, Inc. ("Glenayre") at 1-2 ("[f]or paging operations, and the frequencies used for those operations, there has been no change between the requirements from 1982 and 1992 guidelines when referenced to power densities and when the paging facilities are viewed as 'controlled environments'"); Motorola at 26; Pactel at 10; Comments of Paging Network, Inc. ("PageNet") at 3-6, Attachment; USTA at 3.

[30] Glenayre at 2.

limit, even in the unlikely case that a directional antenna is used, is only 0.676 meters.[31] Under the circumstances, "the FCC [should] continue the use of a categorical exclusion for the paging industry and for transmitters up to and including RF power levels of 500 Watts or 3500 Watts ERP (whichever is greater)."[32]

800 MHz Air-to-Ground Radio operations should be categorically exempted from routine environmental processing. GTE's comments also provide a sound record basis for categorically exempting 800 MHz Air-to-Ground ("ATG") Radio Service facilities and retransmission devices from burdensome individual compliance showings.[33] As noted in GTE's filing, "primary aircraft transmission sources have a severely circumscribed capability for exposing passengers to any significant level of radiation [since] [t]hese airplane mounted transmitters . . . radiat[e] far away from passengers and outside the metal enclosure of the airplane."[34] Because ATG ground stations share similar technical and operating characteristics as other Part 22 base station facilities, both primary aircraft retransmission sources and 800 MHz ATG ground stations should be categorically exempted.

Microwave relay stations pose minimal potential for exceeding the ANSI/IEEE safety standard and continuation of the existing Part 21 categorical exclusion is warranted. As a final matter, commenters have also provided a strong record supporting the continued

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[31] Motorola at 26.

[32] Glenayre at 2.

[33] GTE at 7-9.

[34] GTE at 8.

use of a categorical exemption for Part 21 microwave point-to-point facilities.[35] As EEPA observes, "[t]he low power used for point-to-point microwave radio and the general inaccessibility of the main beam of the antenna pattern result in potential exposure levels in the general environment that are far below the ANSI/IEEE C95.1-1992 limits for the uncontrolled environment."[36] Indeed, EEPA estimates that "levels significantly below 1 $\mu W/cm^2$" are typical for microwave relay links. Since this level of exposure is orders of magnitude below the MPE limits in the ANSI/IEEE standard, Part 21 point-to-point facilities should be exempted from routine environmental processing.

Doty Moore's study purporting to show a non-compliant multiple transmitter site is based on erroneous facts or calculations. In its comments, Doty Moore Tower Services, Inc. ("Doty Moore") has questioned the compliance of multiple transmitter sites, alleging that an antenna farm on a rooftop in the Dallas, Texas, area exceeds the ANSI/IEEE standards.[37] Doty Moore's exhibit refers to two separate sites but provides no explanation of which site was studied or the methodology used to obtain the numbers. Due to the seriousness of Doty Moore's allegations, Hatfield & Dawson was engaged to provide a comprehensive RF survey of the two rooftops referenced in Doty Moore's filing. As shown in Exhibit A, Hatfield & Dawson measured the two sites in accordance with ANSI/IEEE procedures, and, in stark contrast to the findings of Doty Moore, concluded:

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[35] AT&T at 7-8 & Appendix A; EEPA at 5-8; GTE at 15-16; PacTel at 10; Sprint at 3-4, 5-6; USTA at 2-4.

[36] EEPA at 5-6.

[37] Comments of Doty Moore Tower Services, Inc. at 3.

> The measured power densities near the antennas at the Palisades and Continental Plaza buildings do not exceed the 6 minute or 30 minute continuous Maximum Permitted Exposures for either uncontrolled or controlled environments allowed by the ANSI/IEEE C95.1-1992 standard for whole or partial body exposures at any frequency. The actual exposures to persons near the antennas on these building would, in all probability, be even less than the levels shown in this report due to the fact that the antennas do not normally transmit for 6 minutes or 30 minutes continuously.[38]

In view of the fact that Doty Moore has provided no data or measurement procedures in its exhibit, the accompanying charges of noncompliance are not only factually wrong, but also irresponsible. In any event, Hatfield & Dawson's report adds to the substantial evidence showing that continued categorical exclusions for Part 21 and Part 22 base stations are appropriate and justified.[39]

2. The controlled environment definition should not be interpreted to restrict the benefits of categorical exclusions

One of the new aspects of the 1992 ANSI/IEEE safety standard is the use of a controlled/uncontrolled environment distinction to regulate RF exposure. The "controlled" environment is defined as:

> [L]ocations where there is exposure that may be incurred by persons who are aware of the potential for exposure as a concomitant of employment, by other cognizant persons, or as the incidental result of transient passage through areas.[40]

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[38] See Exhibit A at 4-5.

[39] *See also* PageNet at 5-6, Attachment.

[40] ANSI/IEEE C95.1-1992 at 9, 12.

For areas that do not fall within this definition, the "uncontrolled" MPEs apply, which are five times more stringent than the controlled environment MPEs.

In implementing the uncontrolled/controlled environment distinction, the Commission should not narrowly define the concept of "transient exposure."[41] Indeed, as CBS *et al.* observe:

> While . . . [the] extra measure of protection [afforded by the uncontrolled environment limit] is, in our view, appropriate, it clearly goes beyond what has been shown to be necessary for the protection of human health; therefore, we believe it should be applied with due regard for its likely practical impact."[42]

In particular, CBS *et al.* observe that:

> [T]he concept of transience is clearly based on the premise that it is safe for . . . persons to be exposed on a brief, non-recurring basis to levels of RF radiation in excess of the uncontrolled standard, but within the limits of the controlled exposure levels -- levels which ANSI/IEEE has explicitly found to be 'safe for all'."[43]

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[41] Arizona at 6 ("[e]xposure to workers on a tower may be minimized with 'common sense' procedures that discourage working on an antenna in parallel with an energized operational transmitter antenna"); AFCCE at 3 (transient exposure guidelines); BSL at 2-3 ("the phrase '. . . where there is any question of possible exposure . . .' could be interpreted broadly to include the vandal who uses extreme measures to penetrate a well-marked security fence or the landscaping contractor whose employee climbs a well-marked high fence to spread some pea stone around a live AM tower," and thus "all environments could end up in the uncontrolled category"); CBS *et al.* at 4; JC&A at 3 (transient exposure); EEPA at 2-3, 12; Glenayre at 4 (paging); NAB at 15 (noting that "[t]he concept of transient exposure accommodates some of the practical realities of regulating RF exposure"); Sprint at 4-5; UTC at 4 ("facilities should be considered to be operating in uncontrolled environments only when there is at least a reasonable possibility of RF exposure to the general public").

[42] CBS *et al.* at 4.

[43] CBS *et al.* at 14.

Transient exposure thus "accommodates the reality that the public occasionally has access to areas around [radio] facilities."[44] Under the circumstances, a measure of reasonability must be implied in evaluating "access" to a facility to avoid irrationally requiring all facilities to meet "uncontrolled" environment limits.

3. The industry and the FCC should develop workable procedures to allow continued use of categorical exclusions at multiple transmitter sites

The suggestion by some commenters that operating facilities at multiple transmitter sites is at odds with the use of a categorical exclusion is unrealistic for a number of reasons.[45] First, McCaw agrees with PageNet that "even under the revised ANSI/IEEE guidelines, the risk posed by numerous land-mobile facilities at a confined common site [will] normally be well below even the reduced levels allowed for uncontrolled areas."[46] Second, the use of antenna farms and common sites has socially advantageous aesthetic and environmental benefits that should be affirmatively encouraged. Third, the record shows that carriers operating low power facilities are poorly situated to assure compliance of the entire site, given the difficulty of obtaining relevant information regarding the operations of major broadcasters at a site.[47] Consequently, instead of simply removing the benefits of the categorical exemptions for low power transmitters at multiple transmitter sites, the

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[44] CBS *et al.* at 14.

[45] *See, e.g.*, Comments of Cohen, Dippell & Everist, P.C. ("CD&E") at 5; JC&A at 7; Comments of Silliman & Silliman at 1-2.

[46] PageNet at 6.

[47] *See, e.g.*, PageNet at 4, 7-8.

Commission and the radio industry should develop procedures that rationally allocate compliance responsibilities and more equitably distribute the costs of RF assessments,[48] where necessary, at common sites.

B. The Record Shows that Transitional Procedures Should Not Impose Excessive Compliance Costs In Cases Where No Benefit to the Public Is Evident

The principle of avoiding burdensome compliance procedures that add little or no benefit to the public should also govern the Commission's consideration of transitional provisions for the 1992 ANSI/IEEE safety standard. In particular, McCaw believes the record supports reliance on certifications rather than complex engineering studies in applications for new facilities, grandfathering existing facilities, and using the type acceptance process to ensure compliance of consumer RF devices. As discussed below, adoption of these procedures will effectively meet the Commission's obligations under NEPA without adding unnecessary delays and costs to radio services.

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[48] CBS *et al.* at 40 (shared responsibility, "procedures to cover such cases could be contained in the revision of Technical Bulletin OST 65"); Comments of Hammett & Edison, Inc. ("H&E") at 9-10 ("Explicit guidelines for including the possible additive effects of RFR from other stations nearby would help applicants to prepare their filings"); PageNet at 4, 7-8; W&A at 1.

1. No public benefit is gained from requiring lengthy technical submissions from carriers in applications for new or modified facilities

In response to the Commission's solicitation of comments on revising the form questions regarding NEPA compliance, commenters have generally argued for certifications.[49] Only a few commenters, mainly the engineering firms that would be preparing such exhibits,[50] argued for extensive site-specific technical documentation. As AT&T noted, however, revision of the existing forms to require additional documentation has little benefit if the Commission does not have the resources to engage in meaningful individualized evaluations:

> The Commission should recognize . . . that requesting a more elaborate response, such as requiring the applicant to identify whether the controlled or uncontrolled environment limits apply, and whether compliance with the applicable MPE, or reliance on the low power device exclusion or the SAR exclusion, is the basis for the 'No' answer, does not provide assurance that the 1992 ANSI standard is indeed met. Only examination of the applicant's underlying data is sufficient for that purpose. The Commission will have to decide if it has the resources to evaluate such data meaningfully.[51]

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[49] AT&T at 13-14; NAB at 37-38; NABER at 6-8; PacTel at 7 ("[t]he resulting reams of data [from extensive compliance showings] would prove of little value to the Commission given the very low possibility of public exposure to unsafe levels of RF radiation from land mobile facilities"); USTA at 2-4 (at 3: "it does not make sense to arbitrarily require carriers to perform costly radio hazard studies on a routine basis, or to collect data to verify a potential adverse impact that may never exist"); UTC at 7-8 (new, but simple, certification).

[50] *See, e.g.*, CD&E at 6.

[51] AT&T at 13-14.

Furthermore, at least in those cases where categorical exclusions are appropriate, the level of detail required for such evaluations is wholly disproportionate in comparison to the public interest benefits.

One possible compromise that would provide some additional assurances of compliance without imposing extensive burdens in cases where a categorical exclusion does not apply is the suggested use of predictive modelling for compliance showings.[52] McCaw believes creating "stand-off" tables based on typical transmitter categories for classes of radio services would simplify the burden imposed on many carriers, especially smaller licensees with limited resources.[53] Accordingly, for non-categorically excluded services, McCaw believes the Commission should work with the individual radio services and manufacturers to establish conservative set-off tables prior to requiring compliance with the new ANSI/IEEE C95.1-1992 safety standard.

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[52] Arizona at 8; AMSTV at 8; AFCCE at 2, 6; CBS *et al.* at 38-39; CD&E at 2-3; ARRL/BEC at 4-6; EEPA at 11; Comments of Linear Corporation ("Linear") at 15-16 (noting cost and burden of requiring field surveys for commercial and amateur radio stations); NAB at 12-13, 30, 37; SWBMS at 6-7; UTC at 9

[53] In cases where compliance with the controlled/uncontrolled set-offs in a table could not be assured, however, radio operators should have the flexibility to provide individualized data supporting an environmental impact statement.

2. Existing Part 21 and Part 22 facilities should be grandfathered in the event that they are no longer categorically excluded

Although McCaw believes strongly that the existing categorical exclusions should be maintained, if the exclusions are revised, grandfathering provisions should be adopted for previously categorically-excluded facilities. In light of the affirmation of the safety of the 1982 ANSI standard,[54] the conservative nature of the new standard, and the herculean proportions of the task of recertifying compliance,[55] McCaw agrees with commenters that grandfather provisions are warranted for previously categorically excluded facilities.[56] Specifically, for Part 21 and Part 22 facilities that meet the existing categorical exclusions, McCaw recommends grandfathering provisions that would extend until the equipment is replaced. Unlike many single-site broadcast or Private Land Mobile Radio Service facilities, where certification could be accomplished relatively easily upon renewal, cellular systems can have hundreds of individual sites associated with a single call sign for renewal or modification purposes. The magnitude of the task of verifying compliance with the new

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[54] AT&T at 11; IEEE/COMAR at 1 (stating "there exists no credible evidence of harm to human beings resulting from exposure at levels specified in ANSI C95.1-1982"); Motorola at 15 ("there have been millions of Land Mobile transmitters operating for many years with an untold number of operating hours without any credible showing that any harm has ever been caused to human beings from the associated radiofrequency energy exposure"); NAB at 36 n.50; TIA at 19 (stating "[b]y the best information available, not a single case of human harm due to this radiofrequency energy exposure has been substantiated"); Comments of Wizard Broadcasting Company ("Wizard") at 1.

[55] As McCaw discussed in its comments, the task of preparing site assessments for each of its cellular base stations would require over 1 and 1/2 year in field time alone.

[56] AT&T at 11; AMSC at 13 (stating that no evidence exists that the standard in effect inadequately protects the public); Arizona at 8 ("ADPS believes that Land Mobile two-way facilities that are currently categorically excluded, already comply with the requirements of the new standards"); CBS *et al.* at 39-40; GTE at 10-11; Motorola at 22-23.

standard for cellular facilities[57] -- even if only minimal compliance showings are required -- would require the diversion of economic and human resources that would be more effectively directed towards increasing the scope of and improving the quality of cellular service to the public.

3. All Commercial Mobile Radio Service end-user equipment should be classified alike

McCaw agrees with the manufacturing community and carriers alike that the type acceptance process is the appropriate administrative tool for ascertaining the compliance of cellular mobile devices and other end user equipment.[58] Because carriers have little control over the end-user equipment used on their systems, manufacturers are best situated to ensure that portable phones and other devices meet applicable safety standards. However, several commenters have argued that the Part 22/Part 90 division is an appropriate breakpoint for classifying end user equipment into controlled and uncontrolled environments. On this point McCaw must disagree. In the Commission's recently announced decision on Section 332 of the Communications Act, the Commission implemented a new regulatory scheme that divides mobile radio services into commercial ("CMRS") and private ("PMRS") categories that do not track the existing Part 22/Part 90 classifications. If any rigid division should govern the

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[57] CITA's wireless survey data indicates that there were 12,805 cell sites at the end of 1993. If the current growth rates continue, there will be over 16,000 cell sites by the end of 1994.

[58] AFCCE at 4; BellSouth at 8 (noting "[t]he equipment may be used both on the customer's home system and on other systems as a roamer," and therefore "[t]he carrier providing service has no way to ensure that such equipment is installed so as to meet the standards"); CTIA at 6; JC&A at 4; EEPA at 5; Ericsson at 15; Comments of Matsushita Communication Industrial Corporation of America ("Matsushita") at 10-11; NABER at 4-5; SWBMS at 5; TIA at 12, 29; Telocator at 4-5; UTC at 8.

application of the controlled and uncontrolled environmental classifications for handsets, McCaw believes the relevant inquiry should be whether the handset is used in an offering to a broad class of users, *i.e.*, any service regulated as CMRS.

III. COMMENTERS HAVE PROVIDED PERSUASIVE EVIDENCE THAT PREEMPTION OF STATE AND LOCAL RF EXPOSURE OVERSIGHT IS NECESSARY

In its comments filed on January 25, 1994, McCaw asked the Commission to preempt state and local RF exposure oversight for cellular radio services. A broad and diverse range of other commenters have also aked for preemption of state and local RF regulations.[59] As discussed below, this strong interest warrants the issuance of either a further notice or a declaratory ruling delimiting the proper scope of state and local RF exposure oversight.

As recognized by numerous commenters, the fundamental problem with state and local involvement in RF exposure issues is the lack of expertise on the part of local decision makers and their unwillingness to recognize the benefits of making radio services available to the public. As CBS *et al.* note, while "[t]he FCC has the resources and objectivity necessary to balance radio usage and exposure issues in a rational manner," "[t]his expertise is often lacking among state and local regulators who must often address RF exposure issues in an atmosphere of fear and ignorance."[60] This lack of expertise results in unpredictable and

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[59] Comments of the American Radio Relay League, Inc. ("ARRL") at 15; ARRL/BEC at 8; AMSTV at 8-9; AMSC at 14; CBS *et al.* at 40-46; CD&E at 3; Comments of Celpage, Inc. ("Celpage") at 4-8; Epstein at 2-5; Ericsson at 17-18; H&E at 3-7; NAB at 40-45; Comments of National Public Radio ("NPR") at 9-10; Comments of the New Jersey Broadcasters Association ("NJBA") at 1; PacTel at 3-6, Attachments 1 & 2; TIA at 34-35; Comments of Louis A. Williams & Associates ("W&A") at 2.

[60] CBS *et al.* at 42; *see also* AMSTV at 9 (stating "local regulators generally lack the resources and the biological and engineering expertise required to regulate RF radiation effectively").